

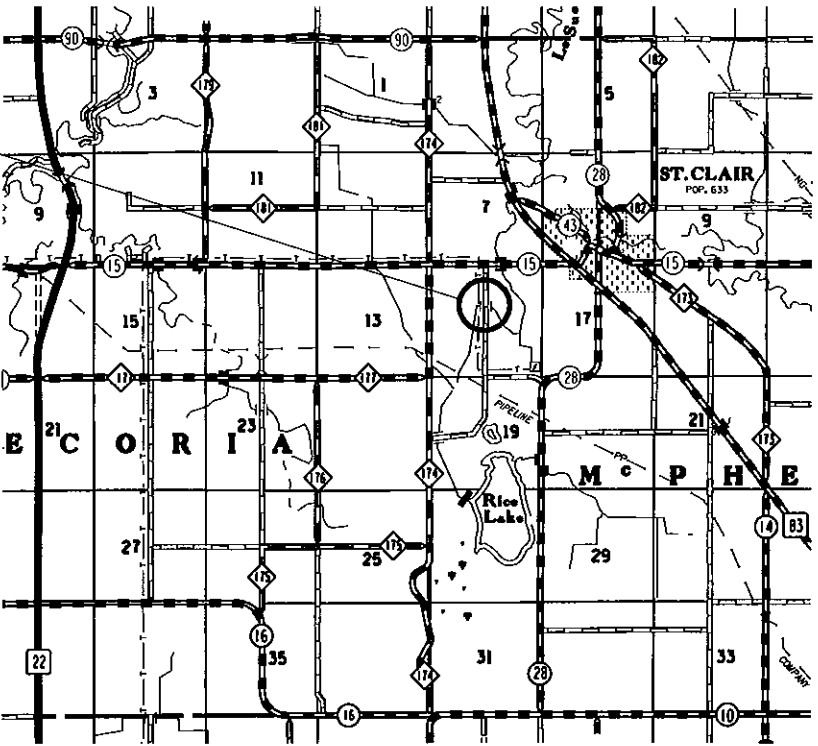
MINNESOTA DEPARTMENT OF TRANSPORTATION
BLUE EARTH COUNTY DEPARTMENT OF PUBLIC WORKS
CONSTRUCTION PLANS FOR BRIDGE, GRADING & SURFACE

BRIDGE No 07J16
SAP 07-599-49

ON McPHERSON TWP RD T-136 (602 AV), 1/2 MILE SOUTH OF CSAH 15
ABOUT 1 MILE SOUTHWEST OF ST CLAIR OVER DRAINAGE DITCH #88
1925' S. OF THE NORTH 1/4 COR. OF SEC 18-107-25

GROSS LENGTH 100.00 FEET 0.019 MILES
BRIDGE-LENGTH 100.00 FEET 0.019 MILES
NET LENGTH 100.00 FEET 0.019 MILES

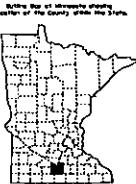
PROPOSED BRIDGE No. 07J16
EXISTING BRIDGE No. L5662



R 26 W

R 25 W

PROJECT LOCATION



BLUE EARTH COUNTY

DESIGN DESIGNATION

ADT (CURRENT YEAR) 2008 = < 30
ADT (FUTURE YEAR) 2028 = < 50
T (HEAVY COMMERCIAL)
5 TON DESIGN
R VALUE
SIGMA N 18
SOIL FACTOR 130

DESIGN SPEED MPH 30
BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE 3.5' - HEIGHT OF OBJECT 2.0'
DESIGN SPEED NOT ACHIEVED AT :

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

McPHERSON TWP SAP. 07-599-49 SHEET No. 1 OF 5 SHEETS

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT
OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR
CONSTRUCTION" SHALL GOVERN.

INDEX OF SHEETS

SHEET No 1 TITLE
SHEET No 2 EST. QUANTITIES & TYPICAL SECTIONS
SHEET No 3 EROSION CONTROL QUANTITIES
SHEET No 4 PLAN PROFILE
SHEET No 5 X-SECTIONS
SHEET No S B-1 - B-3 CULVERT PLAN SHEETS
THIS PLAN CONTAINS 6 SHEETS

SCALE

PLAN 100'
PROFILE 100' HORIZ. 10' VERT.
INDEX MAP 1 MILE
CROSS SECTIONS 10' HORIZ. 10' VERT.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D.
THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF
C1/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND
DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

UTILITIES

ONE CALL: 1-800-252-1166
ELECTRIC: 1-507-387-7963
BENCO
TELEPHONE: 1-507-387-1730
HICKORY TECH

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED
WITH, IN THE CONSTRUCTION OF THIS PROJECT.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS
OF THE STATE OF MINNESOTA

Alan Forsberg
COUNTY ENGINEER
DATE 14 Oct 08
ALAN FORSBERG
LICENSE No. 14720

Al E. Haeder
DATE: 12/5/08
DIST. STATE AID ENG'R : REVIEWED FOR
COMPLIANCE WITH STATE-AID RULES/POLICY

Al E. Haeder
DATE: 12/5/08
STATE BRIDGE ENGINEER
for STATE AID ENG'R : APPROVED FOR STATE-AID FUNDING

<p>THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.</p>	
<p>STANDARD PLATES</p>	
PLATE NO.	DESCRIPTION
3014 J	REINFORCED CONCRETE PIPE ARCH
3114 H	SECTIONAL CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3145 F	CONCRETE PIPE TIES (EYE BOLT TIE)
8000 I	STANDARD BARRICADES

STATEMENT OF ESTIMATED QUANTITIES					
PAGE	ITEM No.	ITEM	UNIT	TOTAL EST. QUANTITY	TOTAL FINAL QUANTITY
4	2104.501	REMOVE STRUCTURAL PLATE ARCH PIPE	LIN. FT.	50	
2	2118.501	AGGREGATE SURFACING CL-1 (M)	TON	65	
3	2573.502	SILT FENCE TYPE HEAVY DUTY	LIN. FT.	100	
3	2573.540	FILTER LOG, TYPE STRAW BIOROLL	LIN. FT.	100	
	2573.550	EROSION CONTROL SUPERVISOR	L.S.	1	
3	2575.555	TURF ESTABLISHMENT	L.S.	1	

Diagram illustrating the cross-section of a trench with dimensions and calculations:

- Dimensions:**
 - Top width: 33' R/W
 - Bottom width: 6'
 - Height: 3'
 - Side slopes: 1 : 3
 - Recovery Area: 18' (centered on the CL)
 - Inner dimensions: 14' and 13' on both sides of the CL.
- Calculations:**
 - Volume calculation: $4'' \text{ CL } 1 \text{ (M) } (2118) \left\{ \frac{27' \times 0.33' \times 100' \times 140}{2000} = 65 \text{ TONS} \right.$
- Notes:**
 - ALL UTILITY POLES & OTHER UNYIELDING OBJECTS SHALL BE REMOVED AND RELOCATED OUTSIDE RECOVERY AREA.
 - 3" TOPSOIL

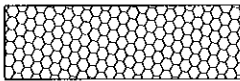
SYMBOLS CODE



SILT BARRIERS



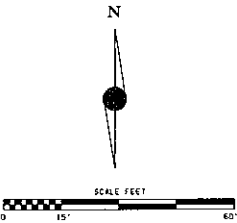
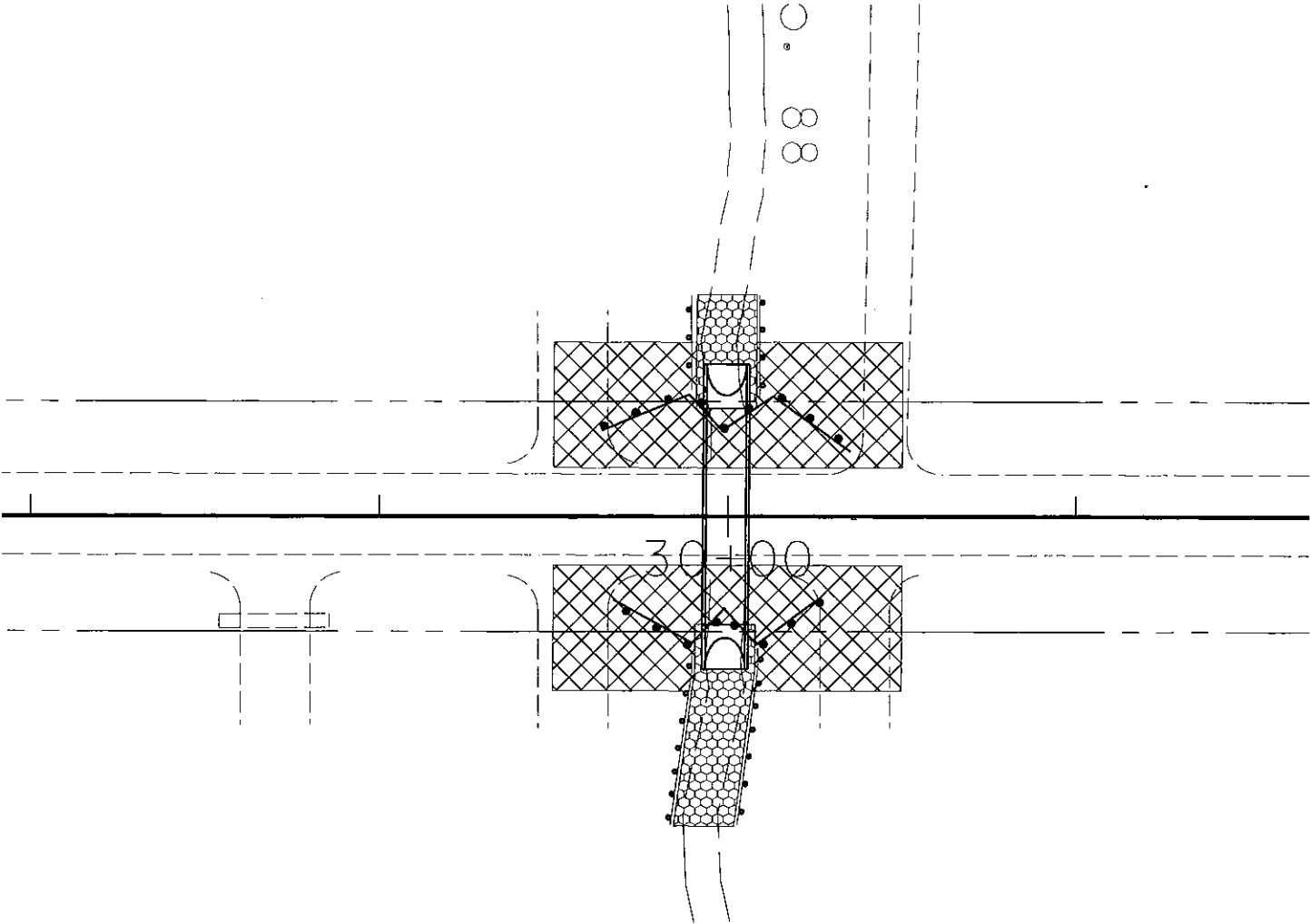
TURF ESTABLISHMENT LUMP SUM
ESTIMATED 0.15 ACRES



RIPRAP CL III 18" DEEP

1. LOCATIONS ON THIS SHEET ARE TO BE USED AS A GUIDE
VERIFY QUANTITIES AND LOCATIONS WITH CONDITIONS IN THE FIELD
2. BASIS OF PAYMENT SPECIFIED IN SPEC. 1903 SHALL BE MODIFIED TO PRECLUDE ANY
PRICE ADJUSTMENT FOR INCREASED OR DECREASED QUANTITIES
3. CHOOSE TYPE OF SILT BARRIERS TO BEST FIT FIELD CONDITIONS
ESTIMATED AT
TYPE SILT FENCE HEAVY DUTY 100'
TYPE FILTER LOG TYPE STRAW BIOROLL 100'
4. RIPRAP CL 3 PLACED 18" DEEP, 6" OF GRANULAR FILTER SHALL BE
INCIDENTAL TO PLACING RIPRAP. (GEOTEXTILE FABRIC MAY NOT BE SUBSTITUTED)

SUMMARY OF IMPERVIOUS & PERVIOUS (NPDES PERMIT)					
	Disturbed area	Before Construction		After Construction	
		(Impervious)	Pervious	(Impervious)	Pervious
total sq ft.	11,210	2,400	8,810	2,800	8,410
Acres	0.26	0.06	0.20	0.06	0.20

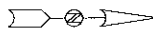


EROSION CONTROL
& TURF EST. PLAN

CERTIFIED BY *Alan Forsberg* L.I.C. NO. 14720 OCT. 2, 2008
PROFESSIONAL ENGINEER

MCPHERSON TWP. SAP 07-599-49 SHEET 3 OF 5 SHEETS

ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE



ACREAGE 40.00
SCHALOW J. C. G. S & L
R451518100004

ACREAGE 40.00
SCHALOW J. C. G. S & L
R451518100004

ACREAGE 65.00
ROHLEDER PATRICIA & BRUELS D L
R451518200003

ACREAGE 65.00
ROHLEDER PATRICIA & BRUELS D L
R451518200003

REMOVE
BRIDGE No. L-5662
INP 50' x 11' 7" SPAN
STRUCTURAL PLATE ARCH PIPE

ITEM	L1	EOP
CONTROL POINT	BOP	
STATION	23+59.2850	35+90.9512
NORTHING	182253.0949	183484.7436
EASTING	602016.4832	602023.0632
DIRECTION	N 00°18'22" E	
DISTANCE	1231.6662	

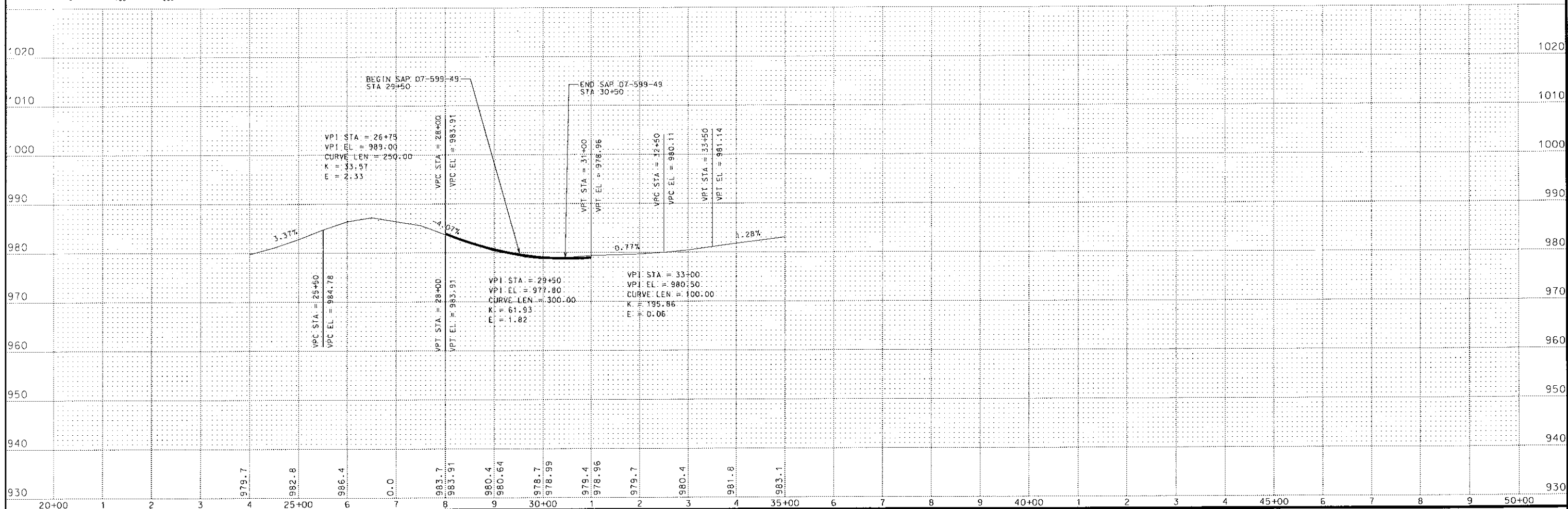
CSAH 15

185 ST

T-136

602 AV

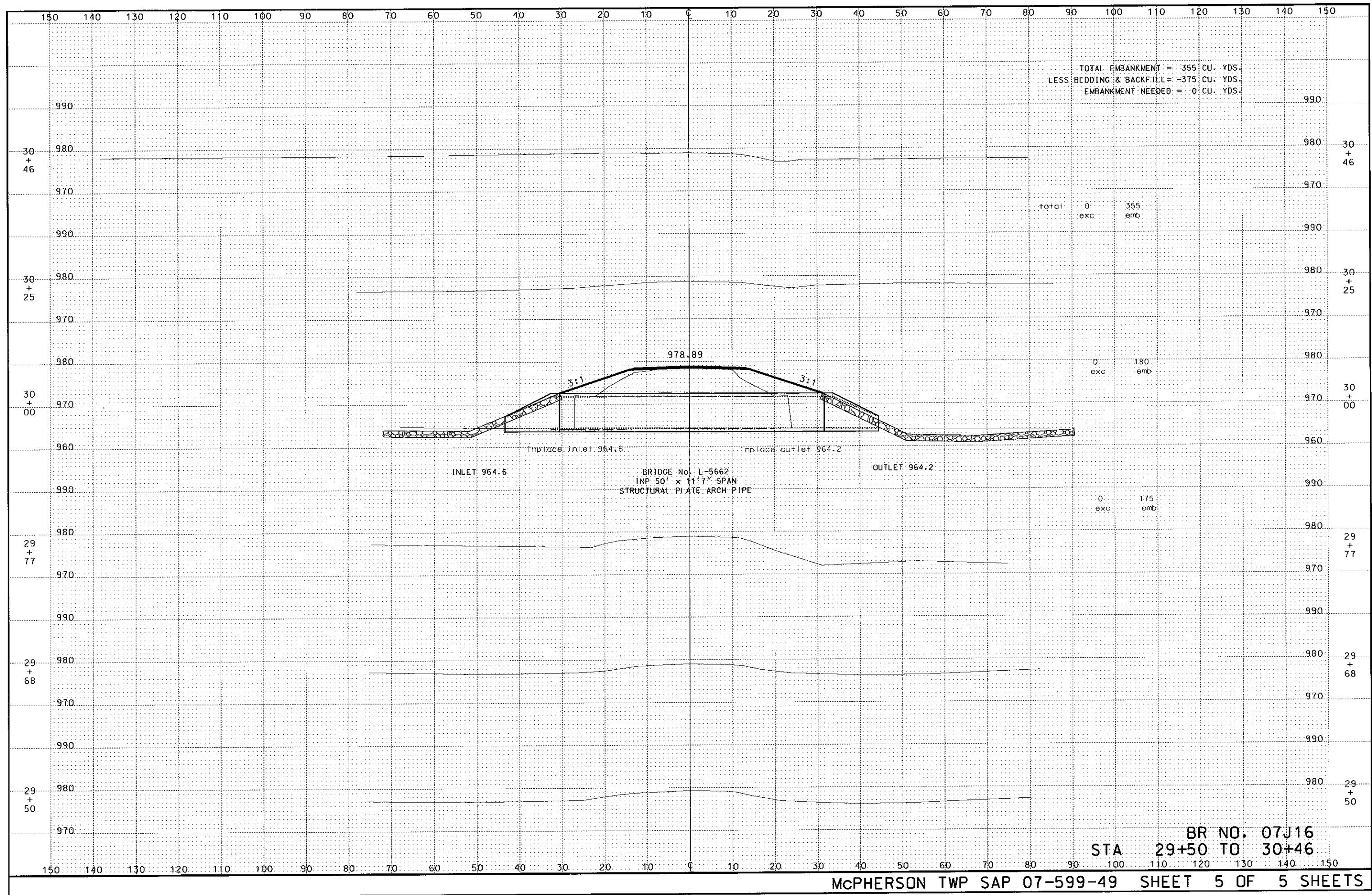
SCALE
0 100 200



CERTIFIED BY *Alan Forsberg* LIC. NO. 14720
PROFESSIONAL ENGINEER

OCT. 30, 2008

McPHERSON TWP SAP 07-599-49 SHEET 4 OF 5 SHEETS



BENCHMARK ELEV. 979.42
LOCATION: SPIKE IN POWER POLE
STA. 28+68 (37' LEFT)

LIST OF STANDARD PLATES	
PLATE NO.	DESCRIPTION
3014 J	REINFORCED CONCRETE PIPE ARCH
3114 H	SECTIONAL CONCRETE APRON FOR R.C.P.A.
3133 C	RIPRAP AT R.C.P. OUTLETS
3145 F	CONCRETE PIPE TIES
8000 I	STANDARD BARRICADES

THE ABOVE STANDARD PLATES, AS APPROVED BY THE
F.H.W.A., SHALL APPLY ON THIS PROJECT.

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA
DEPARTMENT OF TRANSPORTATION
"STANDARD SPECIFICATIONS FOR
CONSTRUCTION" SHALL GOVERN.

CONSTRUCTION NOTES

RIPRAP CONSTRUCTION AT OUTLET SHALL BE AS SHOWN IN THE PLANS AND
STANDARD PLATE 3133. RIPRAP CONSTRUCTION AT INLET SHALL BE AS SHOWN IN THE
PLANS. EXACT PLACEMENT SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

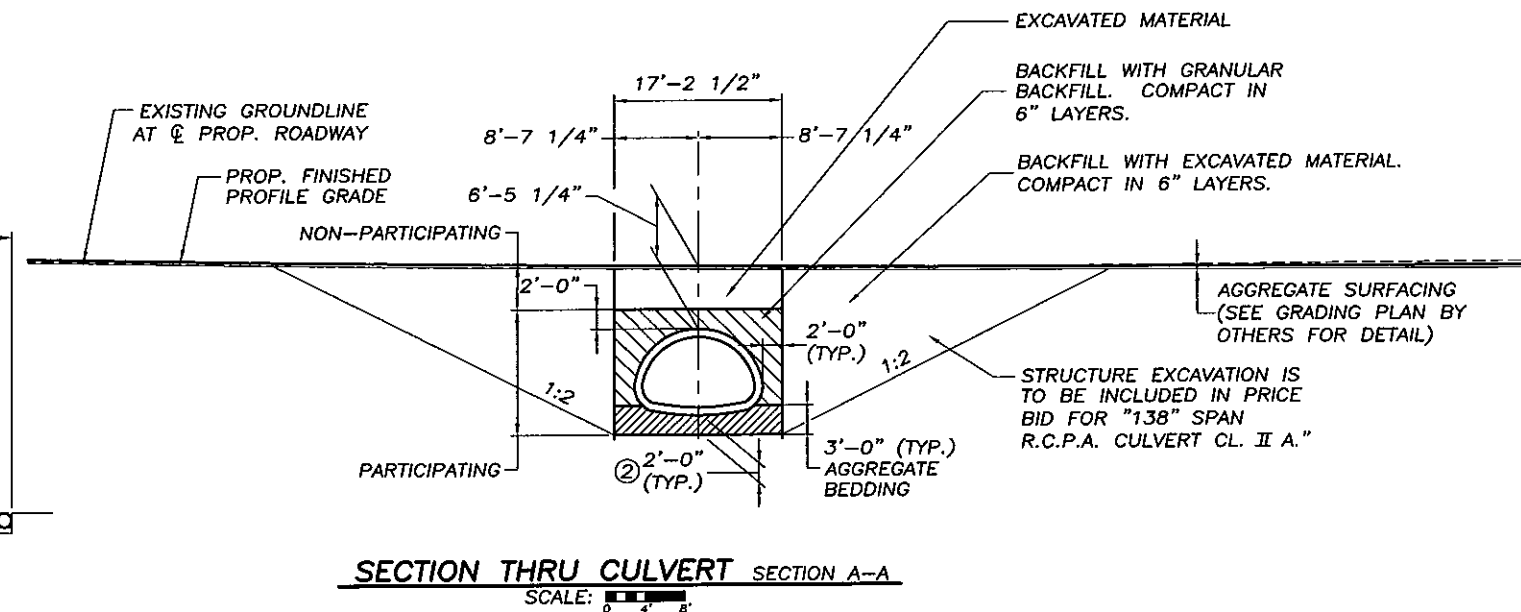
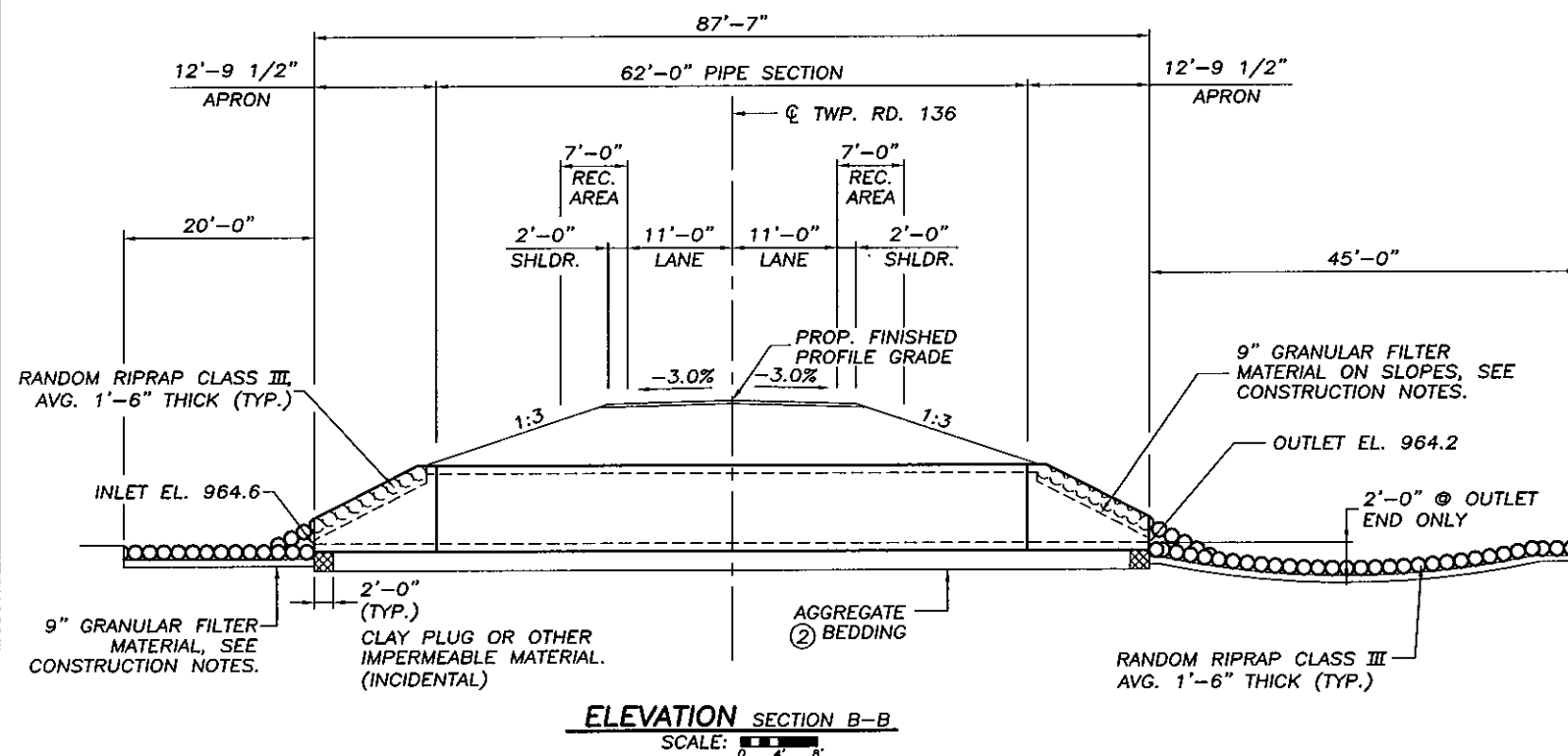
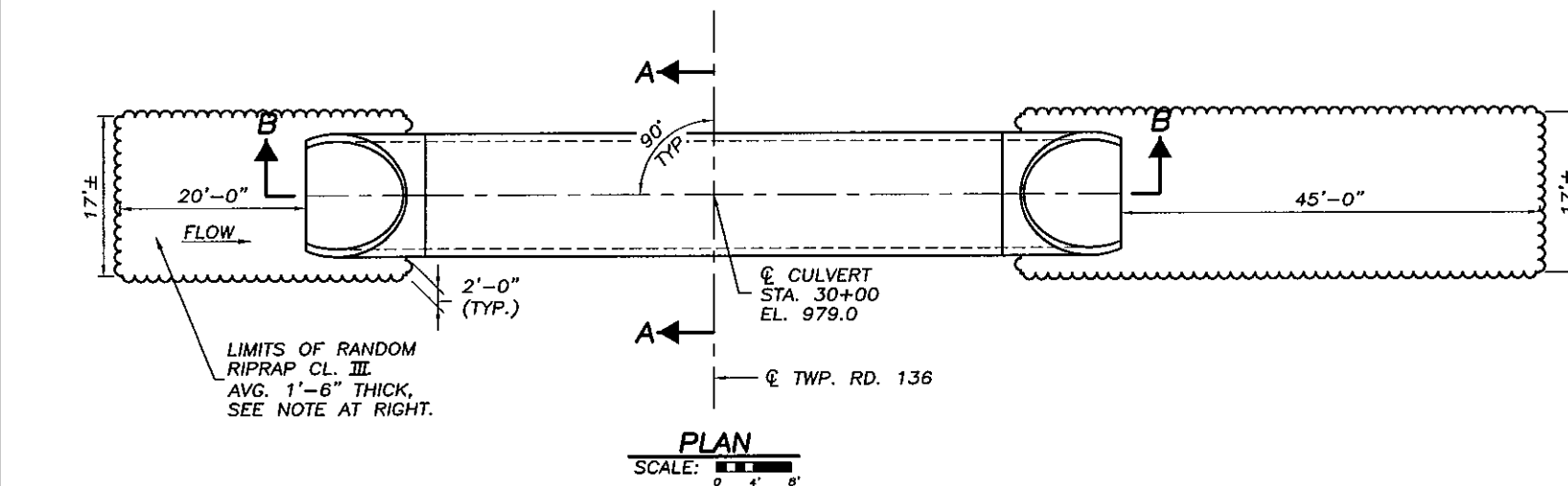
CLEARING AND GRUBBING ARE CONSIDERED INCIDENTAL TO BRIDGE REMOVAL FOR
WHICH NO DIRECT COMPENSATION WILL BE MADE.

EXCAVATION MATERIAL MAY BE USED FOR BACKFILLING APRONS IF APPROVED BY
ENGINEER IN THE FIELD.

GRANULAR FILTER MATERIAL WILL BE CONSIDERED INCIDENTAL TO RIPRAP
CONSTRUCTION FOR WHICH NO DIRECT COMPENSATION WILL BE MADE. APPROXIMATE
QUANTITY OF GRANULAR FILTER IS 34 C.Y.

THE SURVEY USED IN DEVELOPING THIS CULVERT PLAN MUST BE VERIFIED WITH THE
ACTUAL STREAM LOCATION AT THE TIME OF CONSTRUCTION STAKING. IF THE CULVERT
POSITION IS NOT COMPATIBLE WITH THE STREAM, THE ENGINEER SIGNING THESE PLANS
SHALL BE NOTIFIED.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D.
THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF
CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION
OF EXISTING SUBSURFACE UTILITY DATA."



STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	PARTICIPATING	TOTAL
2021.501	MOBILIZATION	LUMP SUM	1	1
2451.503	GRANULAR BACKFILL (CV)	CU. YD.	223	223
2451.509	AGGREGATE BEDDING (CV)	CU. YD.	137	137
2501.521	138" SPAN R.C.P.A. CULVERT CL. II A	LIN. FT.	62	62
2501.525	138" SPAN R.C.P.A. APRON	EACH	2	2
2511.501	RANDOM RIPRAP, CLASS III	CU. YD.	67	67

- SEE CONSTRUCTION NOTES.
- EXCAVATE TO 2' BELOW BOTTOM OF CULVERT OR BOTTOM OF UNSUITABLE SOIL, WHICHEVER IS GREATER. BACKFILL WITH AGGREGATE BEDDING.
- STRUCTURE EXCAVATION SHALL BE INCLUDED IN PRICE BID FOR "138" SPAN R.C.P.A. CULVERT CL. II A."

PLANS PREPARED BY:
ERICKSON ENGINEERING
9330 JAMES AVE. S.
BLOOMINGTON, MN 55431

I HEREBY CERTIFY THAT THIS PLAN (SHEETS
B1-B3) WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM A
DULY LICENSED PROFESSIONAL ENGINEER
UNDER THE LAWS OF THE STATE OF
MINNESOTA.

Chad Darnell CHAD DARNELL

DATE: 10/7/08 LIC. NO. 45944

APPROVED:
COUNTY ENGINEER
BLUE EARTH COUNTY

DATE: 17 Nov 08

TWP. RD. 136 BLUE EARTH COUNTY
MINNESOTA DEPARTMENT
OF TRANSPORTATION

CULVERT NO. 07J16

LOCATED 0.4 MILES SOUTH OF JCT. C.S.A.H. 15
ON TOWNSHIP ROAD 136 OVER
COUNTY DITCH NO. 88

1 LINE 138"x88" R.C.P.A. CULVERT
28 FT. ROADWAY ~ 0' SKEW
SPAN IDENTIFICATION NO. 115

GENERAL PLAN & ELEVATION

SEC. 18 TWP. 107 N R 25 W

TOWNSHIP: MC PHERSON
COUNTY: BLUE EARTH

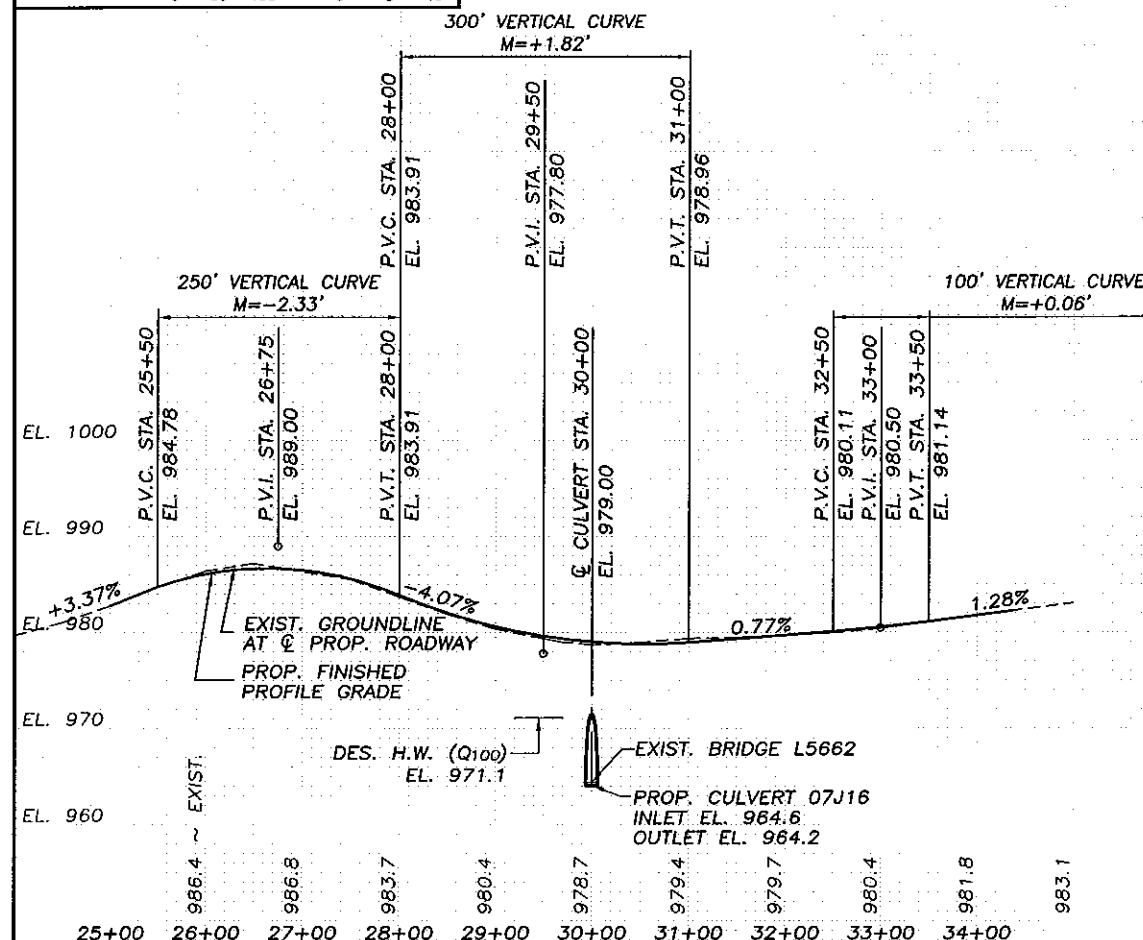
S.A.P. 07-599-49

SHEET B1 OF B3 SHEETS

DES.: CGD DRN.: SUK
CHK.: TJW CHK.: CGD 07J16

CONTRACTED PROFILE

SCALE: HOR. 1"=100' VER. 1"=10'



PLAT

SCALE: 1"=100'

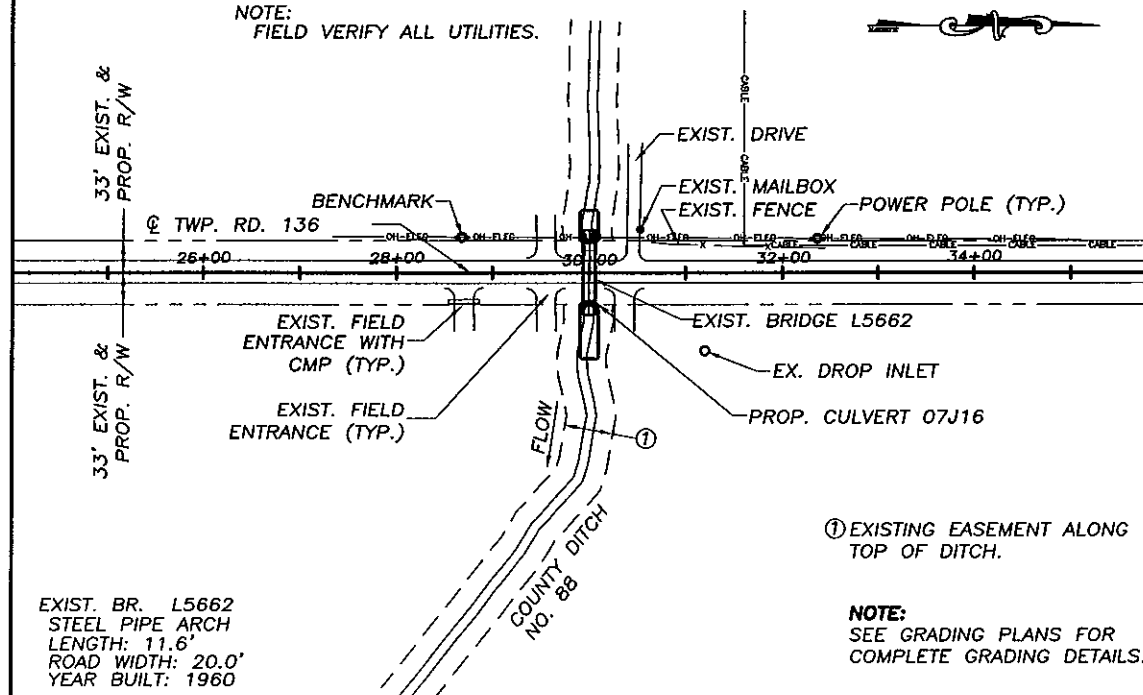
UTILITY INFORMATION

WARNING:
DIAL GOPHER STATE ONE CALL AT 1-800-252-1166
48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS
TO OBTAIN COMPLETE UTILITY PROPERTY OWNERSHIP
AND LOCATION INFORMATION.

UTILITY INFO AVAILABLE FOR PLAN PREPARATION:
BENCO ELECTRIC (UNVERIFIED)
XCEL ENERGY (UNVERIFIED)
FRONTIER COMMUNICATIONS (UNVERIFIED)
HICKORY TECH.

(507) 387-7963
(608) 223-2014
(763) 682-3514
(507) 386-3553

NOTE:
FIELD VERIFY ALL UTILITIES.

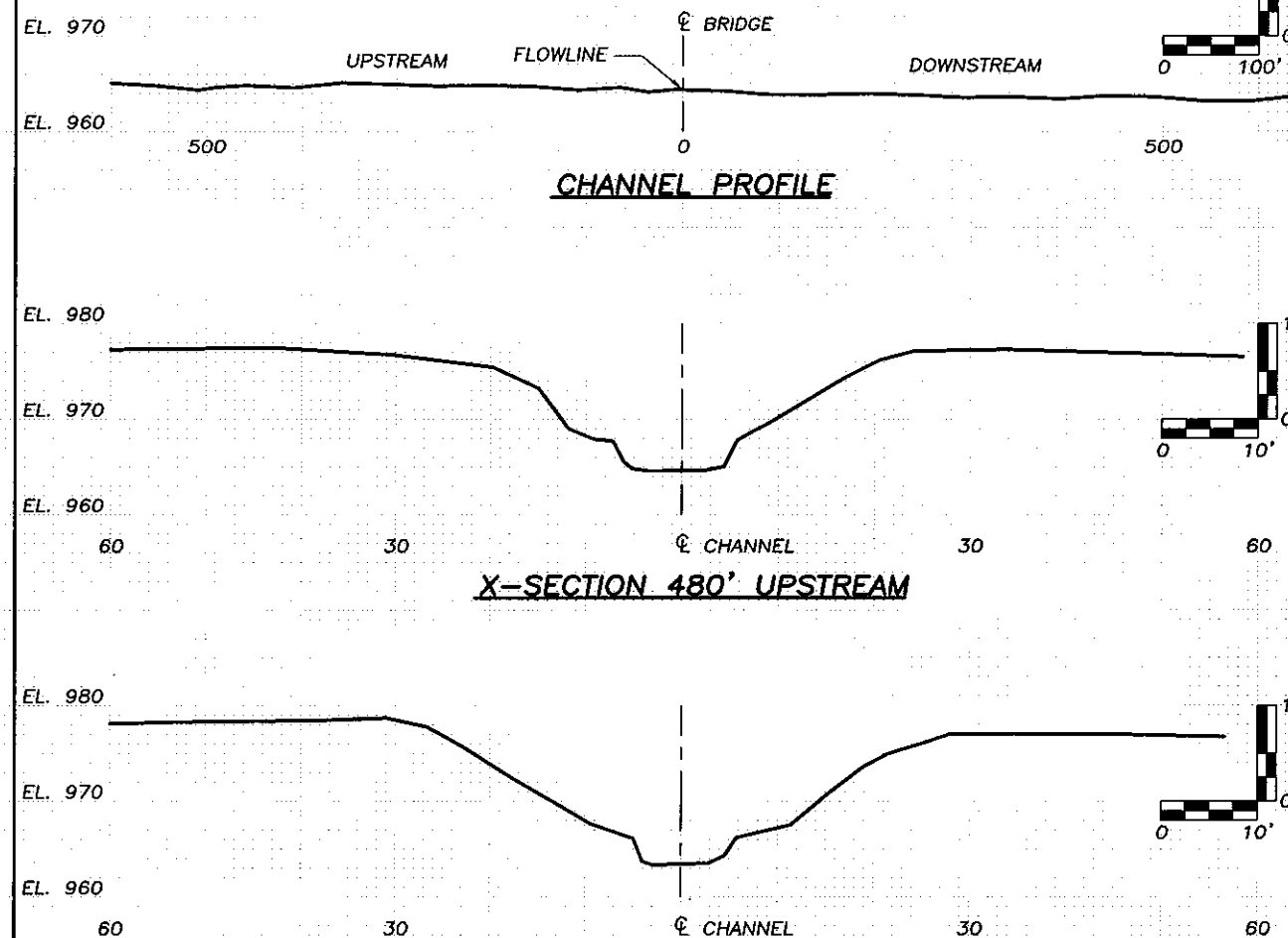


① EXISTING EASEMENT ALONG
TOP OF DITCH.

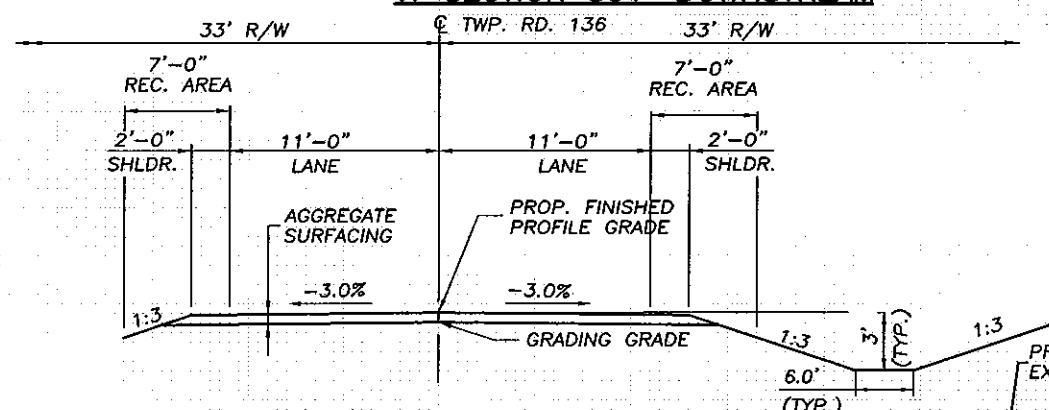
NOTE:
SEE GRADING PLANS FOR
COMPLETE GRADING DETAILS.

TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

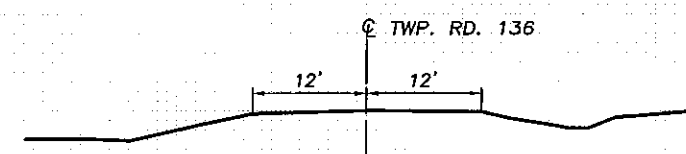


X-SECTION 391' DOWNSTREAM



TYPICAL SECTION THRU PROPOSED ROADWAY

SEE GRADING PLANS FOR COMPLETE GRADING DETAILS.



TYPICAL SECTION THRU EXISTING ROADWAY

Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATION AT BRIDGE SITE

DATE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, rec. boats.

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

3. Apparent highwater elevation: 978.8. Obtained from LOCAL RESIDENT

4. Other data: Approx. velocity of water at time of survey

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 01-08-08

Stream or ditch designation: COUNTY DITCH NO. 88
Drainage area: 13.3 SQ. MI.
Max. flood on record: UNKN. Design flood (100 yr. freq.): 490 C.F.S.
Max. observed highwater elev.: 978.8. Design highwater elev.: 971.1
Design mean velocity through structure: 7.6 F.P.S.
Skew angle: 0°
Flowline Inlet elevation: 964.6. Flowline Outlet elevation: 964.2
Barrel Inlet elevation: 964.6. Barrel Outlet elevation: 964.2

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 490 C.F.S. at stage 971.1 and mean velocity of 7.6 F.P.S. with 1.2 Ft. swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

ENGINEER'S RECOMMENDATION

DATE 01-08-08

1 - 138"x88" R.C.P.A. CULVERT
0° SKEW, 28 FT. ROADWAY WIDTH

Bridge survey sheets made from: SURVEY NOTES FROM BLUE EARTH COUNTY

Benchmark elevation: 979.42
Location: SPIKE IN POWER POLE STA. 28+68 (37' LEFT)

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION

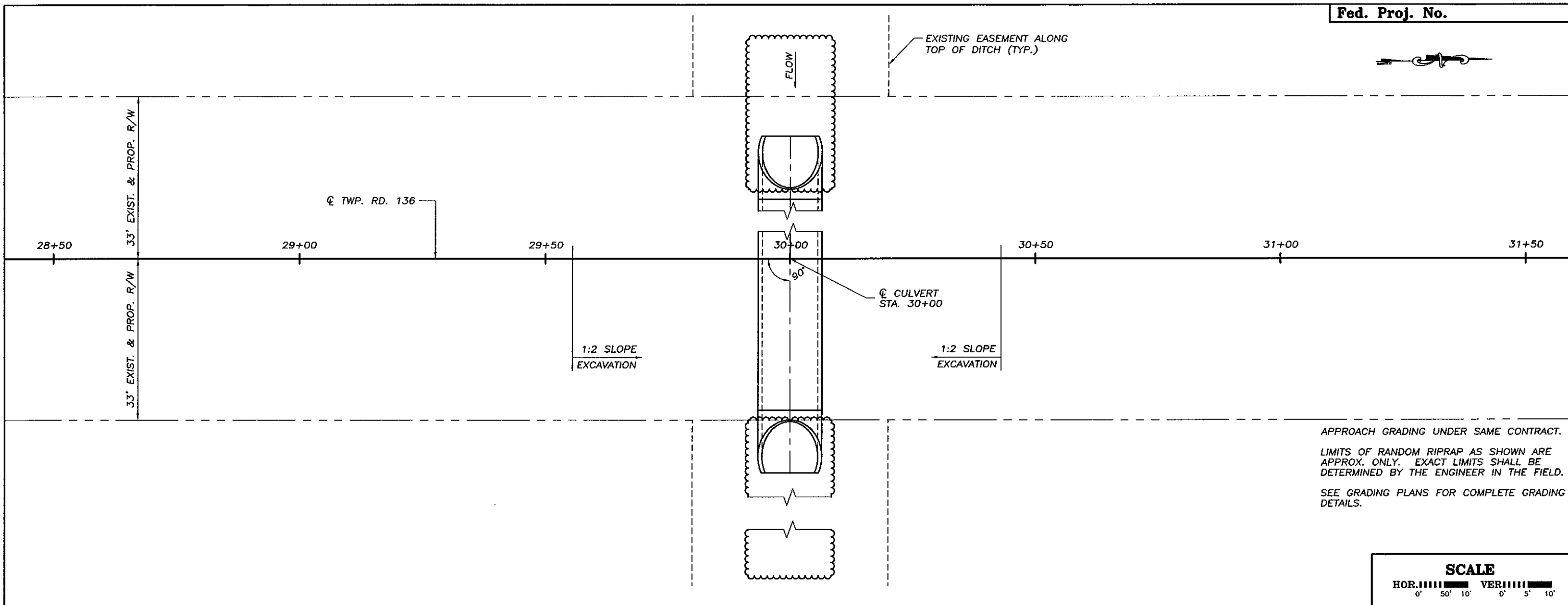
CULVERT SURVEY

AT MILE POINT ON TWP. RD. 136
PROPOSED BRIDGE LOCATED 0.4 MILES SOUTH OF J.C.T. C.S.A.H. 15 OVER COUNTY DITCH NO. 88
SEC. 18 TWP. 107 N. R. 25 W.
TOWNSHIP MC PHERSON, COUNTY BLUE EARTH
EXIST. BRIDGE NO. L5662
PROP. BRIDGE NO. 07J16

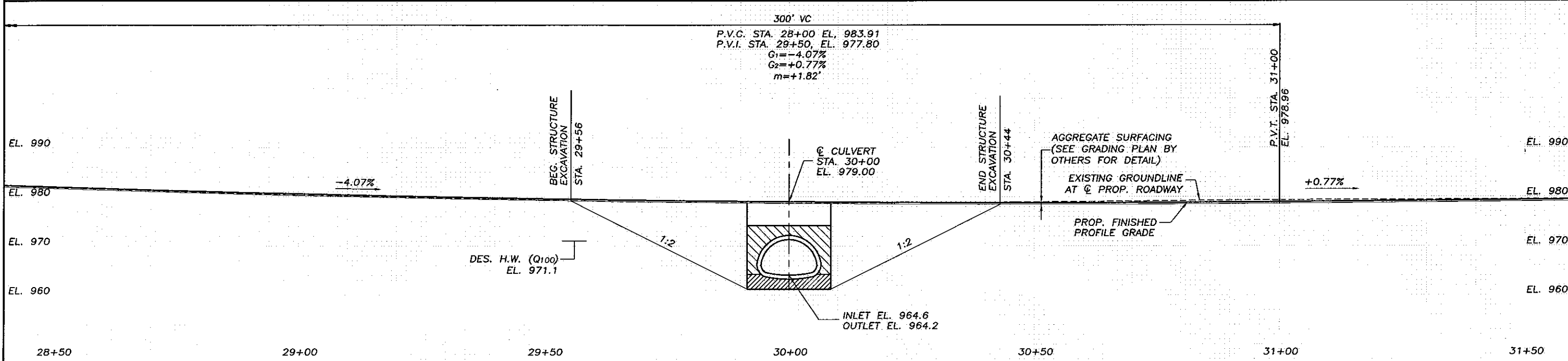
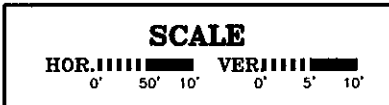
CERTIFIED BY Chad Samell LIC. NO. 45944 DATE: 10/7/08

State Aid Proj. No. 07-599-49

Sheet No. B2 of B3 Sheets



APPROACH GRADING UNDER SAME CONTRACT.
LIMITS OF RANDOM RIPRAP AS SHOWN ARE APPROX. ONLY. EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
SEE GRADING PLANS FOR COMPLETE GRADING DETAILS.



CERTIFIED BY <i>Chad Samell</i> PROFESSIONAL ENGINEER/CHAD DARNELL LIC. NO. 45944 <i>10/7/08</i> 2008	CULVERT SURVEY PLAN & PROFILE	DES.: CGD	DRN.: SUK	APPROVED:	Culvert No 07J16
		CHK.: TJW	CHK.: CGD		
State Aid Proj. No. 07-599-49		Sheet No. B3 of B3 Sheets			